REMARKS

Claims 18-24 and 26-40 are pending in this application. Claims 18-24, 26-27, 32, 35-36 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyoshi (U.S. Patent No. 5,667,853) in view of CERAC (CERAC Technical Publications) and Austin (U.S. Patent No. 5,508,091). Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyoshi in view of CERAC and Austin. Claims 29-30, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyoshi in view of CERAC. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyoshi in view of CERAC, and in further view of Tanitsu (U.S. Patent No. 5,520,952). Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyoshi in view of CERAC and Austin, and further in view of Takase (U.S. Patent No. 5,750,267). Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyoshi in view of CERAC, and further in view of Tanitsu. Further, claims 31, 35, and 39 have been rejected under 35 U.S.C. 112. Applicants herein amend claims 18, 29, 31, 35, and 39 and cancel claims 21 and 30. Applicants address each of the rejections and discuss the claim amendments and new claims in turn below.

I. 35 U.S.C. 112 Rejections

Claim 31 has been rejected as lacking sufficient antecedent basis for the term "the hard coating." In response, Applicants have amended claim 29 to recite a hard coating. Applicants submit that antecedent basis is now proper and request withdrawal of the rejection.

Further, with respect to the 35 U.S.C. 112, first paragraph, rejection of claims 35 and 39, Applicants refer to paragraph [0029] of the specification, which provides:

> **[0029]** It has been found that the electrode assemblies of the present invention can readily be formed having *greater than* 80% transparency at 550 nm, and less than 10 ohms per square sheet resistance. Such electrode assemblies are readily incorporated into liquid crystal display assemblies of commercial quality. (emphasis added)

Applicants herein amend claims 34 and 39 to now recite "greater than" 80% transparency at 550 nm. Accordingly, Applicants request withdrawal of the rejection.

II. 35 U.S.C. 103(a) Rejections

Overview of Arguments

Applicants have amended independent claims 18 and 29. Both independent claims now recite a substrate that comprises a synthetic resin and a silica layer. Further, the role of the silica layer in promoting adhesion between the synthetic resin substrate and a high index layer has been recited. Claim 29 has been further amended to include a hard coating disposed adjacent to the substrate such that the silica layer is disposed on the hard coating.

Independent claim 18 is patentable over Austin, Fukuyoshi et al., and the CERAC technical publication because none of these references, either alone or in combination, shows or suggests a substantially transparent electrode assembly including a substrate including a synthetic resin, a high index layer formed on the substrate, a conductive layer formed on and disposed adjacent to the high index layer, a high index top layer having a conductivity ranging from about 100 ohms/square to about 400 ohms/square and a thickness of from about 20 nm to about 100 nm formed on the conductive layer, at least the top layer and the conductive layer being patterned so as to divide the conductive layer into a plurality of discrete electrodes; and a layer of silica disposed on the substrate, the layer of silica in substantially continuous contact with the substrate and adapted to promote adhesion of the high index layer to the substrate.

Similarly, independent claim 29 is patentable over Austin, Fukuyoshi et al., and the CERAC technical publication because none of these references, either alone or in combination, shows or suggests an electrode assembly that includes a substrate including a synthetic resin, a high index layer formed on the substrate, a conductive layer formed on and disposed adjacent to the high index layer, a high index top layer having a conductivity ranging from about 100 ohms/square to about 400 ohms/square formed on the conductive layer, at least the top layer and the conductive layer being patterned so as to divide the conductive layer into a plurality of discrete electrodes, a hard coating disposed adjacent to the substrate; and a layer of silica disposed on the hard coating, the layer of silica in substantially continuous contact with the hard coating and adapted to promote adhesion of the high index layer to the substrate. In particular, the cited references fail to teach the combination of a hard coating coupled with a silica layer as recited in Claim 29.

Applicants submit that the features recited in claims 18 and 29 are not taught by the cited references. Further, Applicants submit that the geometries of the electrode assemblies taught in Fukuyoshi and Austin are not suitable for combination and that there is no teaching to combine the references cited in the Office action. In addition, there is no teaching in any of the references cited for an electrode assembly that includes a silica layer to promote adhesion that is disposed on a synthetic resin material. For at least these reasons, which are discussed in more detail below, Applicants submit the pending independent claims, and those that depend from them and recite further limitations thereon, should be passed to allowance.

A. Austin

Applicants submit that the Austin reference is substantially directed to the use of glass substrates. Austin fails to teach the use of a substrate including a synthetic resin. More significantly, Austin fails to teach a method or electrode assembly such that a silica layer is disposed on a synthetic resin substrate, as recited in claim 18, or wherein the silica layer is formed on a hard coating layer, as recited in claim 29. Moreover, using a silica layer to promote adhesion to a substrate is not taught in the Austin reference.

Further, Austin's use of a barrier layer on a glass substrate cannot be combined with the teachings of Fukuyoshi which show, in Figure 2, a rippled silica layer that makes alternating contact – not substantially continuous contact as claimed, with both the substrate and a front thin oxide layer. Thus, the placement of a silica layer in Austin cannot be combined with the different layer geometry of Fukuyoshi to teach all of the elements claimed.

Applicant's experimentation with temperature, fabrication techniques to achieve desired sheet resistances and conductivity levels, and the use of coatings to promote adhesion between the substrate and the lower high index layer, as evidenced by the claims, further differentiate the present invention from the cited prior art. These factors support a determination of patentability of the present invention and a finding of non-obviousness over the cited references.

In particular, Austin fails to teach a conductive layer formed on and disposed adjacent to the high index layer. As shown in Figure 16, Austin teaches a conductive layer 106 disposed between two silicon dioxide layers 105, 107. A third silicon dioxide layer 109 is also shown. The addition of the two extra layers 105-107 detrimentally increases the overall thickness of the

optical stack shown in Figure 16. The claimed approach wherein the high index and conductive layers are adjacent does not suffer from this deficiency.

Given the presence of the two intervening silicon dioxide layers 105, 107 that surround the conductive layer 106, it is clear that the conductive layer depicted and described in Austin are not disposed adjacent to the high index layer, as recited in claim 18. This follows because the intervening silicon dioxide layers preclude any adjacent contact. As such, the cited reference fails to teach the present invention. For at least these reasons, claim 18 and the claims that depend from it should be passed to allowance.

B. Fukuyoshi

Fukuyoshi discloses a multilayered conductive film including a silver-based layer formed of a silver-based metallic material, and first and second transparent oxide layers being independently formed of a compound oxide material of indium oxide. As the Office action states, Fukuyoshi fails to teach that the transparent oxide top layer has a conductivity ranging from about 100 ohms/square to about 400 ohms/square. The Office action further notes that Fukuyoshi fails to teach that the layer of silica disposed on the substrate is in substantially continuous contact with the substrate.

The allegation that the present invention is obvious in light of the three reference cited is not tenable. First, in the absence of hindsight reasoning, three different references relating to different substrates and different layer arrangements cannot be combined to produce an obvious result. Second, the two references, Fukuyoshi and Austin, teach electrode assemblies having different layer arrangements. Thus, combining the layers shown in Fukuyoshi and Austin fail to produce the claimed layer structure. Third, since Fukuyoshi teaches a silica layer with a rippled configuration for the purposed of coating multiple patterned electrodes, its approach teaches away from the layer arrangement of Austin. For these reasons, and Fukuyoshi's general failure to teach all of the elements recited in the independent and dependent claims, the rejections based on Fukuyoshi should be withdrawn and the claims passed to allowance.

C. CERAC

The CERAC technical publication recites information about an indium tin oxide product that is offered for sale. There is no suggestion in the reference about how much ITO to use for a

given application or how to fabricate a complex multilayer optical device. Clearly, there is no motivation in the CERAC reference to combine different select layers from the Austin and Fukuyoshi references along with some additional teaching about how to fabricate an ITO layer to teach the claimed invention.

Further, the Office action states that the CERAC technical publication "teaches that high conductivity is balanced against high transmission in the visible light region, and that indium tin oxide must have a conductivity...or sheet resistance of greater than 100 ohms/square in order to obtain visible region transmission near 90%." The Office action states that it would have been the result of routine experimentation for one of ordinary skill in the art to use indium tin oxide with a conductivity ranging from about 100 ohms/square to about 400 ohms/square as the transparent oxide top layer of Fukuyoshi. However, the present specification states that the preferred materials and processes for forming the top layer are the same as those for forming the insulating layer, except that the conditions used to deposit the top layer should be varied so as to give the top layer substantial conductivity. See specification page 8, lines 1-4.

In addition, the CERAC technical publication discloses that the "optical and electronic properties of ITO films are highly dependent on the deposition parameters and the starting composition of evaporation material used." Therefore, there is no suggestion or motivation within Fukuyoshi or the CERAC publication to vary the condition used to deposit the high index top layer and the high index layer in the way suggested by the Office action to make the present claimed invention. However, even if the cited references disclose what the Office action claims they disclose, none of the references teach or suggest tailoring the deposition process to achieve the sheet resistance or conductivity ranges required by the invention. In essence, none of the cited references provide the motivation for one skilled in the art to obtain the specific conductivity ranges recited in the claims. For at least these reasons, Applicants submit that the CERAC reference fails to teach any element of the claimed invention or render it obvious in light of the teachings of the other references.

CONCLUSION

For the reasons set forth above, Applicants submit that Austin, Fukuyoshi, and CERAC, either alone or in combination, fail to anticipate or render obvious the pending claims. Accordingly, claims 18 and 29 and dependent claims 19, 20, 22-24, 26-29, and 31-40, which depend from independent claims 18 or 29 and contain all of the limitations of the independent claim from which they depend, should be passed to allowance. All of the pending claims are patentable over Austin, Fukuyoshi, and the CERAC publication, either alone or in combination, for at least the same reasons set forth above.

Applicants submit that all of the claims are now in condition for allowance, which action is requested. Enclosed is a petition for a three-month extension of time and a Request for Continued Examination with the required fees. Please apply any charges or credits to Deposit Account No. 50-1721.

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